US009299523B1

(12) **United States Patent**
Whipple et al.

(10) **Patent No.: US 9,299,523 B1**
(45) **Date of Patent: Mar. 29, 2016**

(54) **SWITCHING DEVICE ASSEMBLY AND ADAPTER ASSEMBLY THEREFOR**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/568,296**

(22) Filed: **Dec. 12, 2014**

(51) **Int. Cl.**

H01H 71/10	(2006.01)
H01H 71/02	(2006.01)
H01R 31/06	(2006.01)
H01R 9/18	(2006.01)

(52) **U.S. Cl.**
CPC ***H01H 71/1045*** (2013.01); ***H01H 71/0207*** (2013.01); ***H01R 9/18*** (2013.01); ***H01R 31/06*** (2013.01)

(58) **Field of Classification Search**
CPC H01R 9/18; H01H 71/1045
USPC 439/709, 810–814
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,285,928	A *	6/1942	Jensen	H01R 4/36	200/284
2,780,793	A *	2/1957	Gambale	H01R 4/62	439/812
2,907,978	A *	10/1959	Bergan	H01R 4/363	439/793
3,066,277	A *	11/1962	Edmunds	H01R 9/18	174/86
3,076,952	A *	2/1963	Powell	H01R 9/16	439/718
3,165,372	A *	1/1965	Jacobs	H01R 9/22	174/72 R
3,335,399	A *	8/1967	Rys	H01H 1/5855	439/739
3,344,394	A *	9/1967	Kingsbury	H01H 71/08	200/237
3,638,173	A *	1/1972	Middendorf	H01R 4/36	403/362
3,747,052	A *	7/1973	Sheldon	H01R 4/36	439/814
3,888,560	A *	6/1975	Smith	H01H 71/08	200/284
3,891,298	A *	6/1975	Yorgin	H01H 71/08	439/620.08
4,027,940	A *	6/1977	Mazzeo	H01R 4/366	439/812
4,171,152	A *	10/1979	Geiseler	H05K 3/306	439/715

(Continued)

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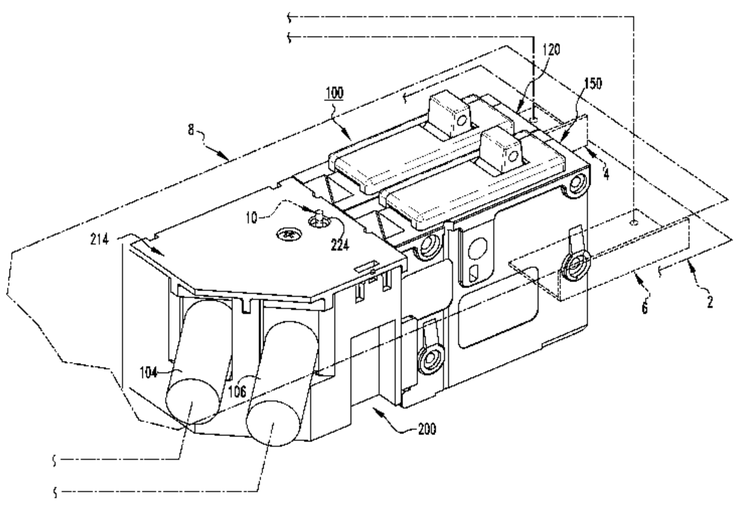
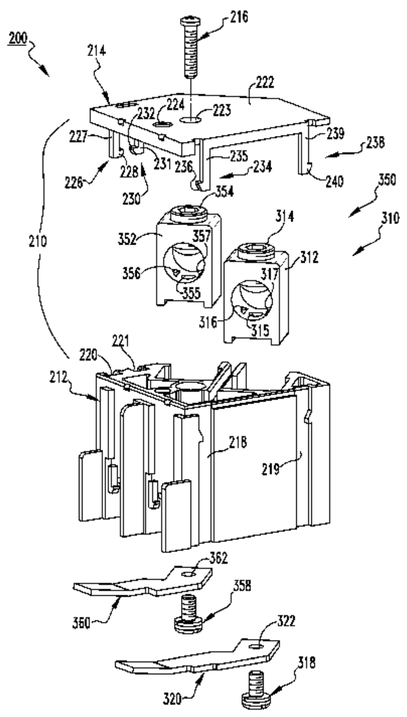
(57) **ABSTRACT**

An adapter assembly is for a switching device assembly of an electrical system. The electrical system includes a bus assembly. The switching device assembly includes at least one cable and at least one electrical switching apparatus. The cable is electrically connected to the bus assembly. The electrical switching apparatus has a switching device lug member, a switching device lug fastener, and a load terminal. The switching device lug fastener connects the load terminal to the switching device lug member. The adapter assembly includes: a housing assembly having a base member; and at least one interconnect assembly including: an adapter lug member coupled to the base member, the adapter lug member receiving the cable, an adapter fastener securing the cable to the adapter lug member, and an adapter terminal coupled to the adapter lug member and the switching device lug member in order to provide an electrical pathway therebetween.

20 Claims, 7 Drawing Sheets





(56) **References Cited**

U.S. PATENT DOCUMENTS

4,213,669	A *	7/1980	Wittes	H01R 4/36 439/811
4,603,376	A *	7/1986	Maier	H01R 4/36 200/284
4,669,806	A *	6/1987	Fuchs	H01R 4/363 439/712
4,693,542	A *	9/1987	Heng	H01R 4/363 439/626
5,005,104	A *	4/1991	Grunert	H01H 71/08 335/202
5,030,131	A *	7/1991	Boehm	H01R 4/36 439/387
5,064,384	A *	11/1991	Weaver	H01R 9/2675 439/511
5,107,396	A *	4/1992	Rosen	H01H 71/08 361/634
5,206,789	A *	4/1993	Barbry	H01H 71/08 200/284
5,269,710	A *	12/1993	Donnerstag	H01H 71/08 439/810
5,533,913	A *	7/1996	Boehm	H01R 4/36 439/810
5,753,877	A *	5/1998	Hartzel	H01H 9/342 218/157
5,811,749	A *	9/1998	Bausch	H01H 9/342 200/306
5,831,498	A *	11/1998	Maloney	H01H 9/0264 335/202
5,944,551	A *	8/1999	Kline	H01R 4/36 439/418
5,978,208	A *	11/1999	Helms	H01H 1/5855 200/284
6,036,542	A *	3/2000	Montague	H02B 1/04 439/575
6,084,188	A *	7/2000	Mueller	H01H 71/08 200/305
6,129,595	A *	10/2000	Scanlon	H02B 1/056 361/637
6,211,759	B1 *	4/2001	Little	H01H 9/0264 335/202
6,213,818	B1 *	4/2001	Chadbourne	H01R 4/36 439/224
6,280,264	B1 *	8/2001	Whipple	H01H 11/0031 335/202
6,338,658	B1 *	1/2002	Sweeney	H01R 4/36 439/709
6,361,382	B1 *	3/2002	Yamada	H01R 4/302 439/801
6,407,354	B1 *	6/2002	Turner	H01H 9/342 218/155
6,437,268	B1 *	8/2002	Etscheidt	H01H 71/08 200/305
6,529,112	B1 *	3/2003	Leone	H01R 4/36 337/113
6,589,071	B1 *	7/2003	Lias	H01H 71/08 439/511
6,612,878	B2 *	9/2003	Lias	H01R 9/24 439/507
6,624,375	B2 *	9/2003	Leone	H01H 9/342 218/155
6,692,296	B2 *	2/2004	Lias	H01R 9/226 439/507
6,733,347	B2 *	5/2004	Palet Mercader	H01H 71/08 439/810
6,781,491	B2 *	8/2004	Whipple	H01R 31/06 335/202
6,814,628	B2 *	11/2004	Chadbourne	H01R 9/2408 439/717
6,838,962	B2 *	1/2005	Leone	H01H 9/342 335/16
6,923,680	B2 *	8/2005	Dumont	H01R 9/2416 439/582
6,930,577	B2 *	8/2005	Subramanian	H01H 1/2058 200/304
6,942,527	B1 *	9/2005	Lias	H01H 11/0031 335/202
7,009,132	B1 *	3/2006	Shea	H01H 9/342 218/155
7,075,021	B2	7/2006	Rowe et al.	
7,097,502	B2 *	8/2006	Landis	H01R 4/36 439/595
7,132,913	B2 *	11/2006	Whipple	H01H 11/0031 335/202
7,364,476	B2 *	4/2008	Mueller	H01R 4/36 439/709
7,540,792	B2 *	6/2009	Ananthakrishnan	H01H 50/543 335/202
7,586,057	B2 *	9/2009	Sisson	H01H 9/342 200/293
7,786,831	B2 *	8/2010	Oh	H01H 71/08 200/293
7,798,869	B1 *	9/2010	Konopacki	H01R 4/363 439/812
7,927,156	B2 *	4/2011	Appel	H05K 1/0256 439/709
8,017,881	B2 *	9/2011	Simmons	H01H 71/08 200/293
8,105,118	B2 *	1/2012	Claprood, Jr.	H01R 4/304 439/709
8,157,603	B2 *	4/2012	Trico	H01R 4/307 439/810
8,297,901	B2 *	10/2012	Raabe	B21H 3/02 411/393
8,348,706	B2 *	1/2013	Yu	H01R 4/36 439/737
8,485,852	B2 *	7/2013	Wu	H01R 4/36 439/814
8,602,829	B2 *	12/2013	Kosyanchuk	H01R 4/363 439/813
8,698,023	B2 *	4/2014	Grunwald	H01H 71/08 200/303
8,853,576	B2 *	10/2014	Sisley	H01H 77/00 200/304
8,870,608	B2 *	10/2014	Weiden	H01R 4/4818 439/811
8,870,609	B2 *	10/2014	Eberts	H01H 71/08 439/814
8,998,657	B1 *	4/2015	Von Eckroth	H01R 13/114 439/810
9,082,560	B2 *	7/2015	Helms	H01H 1/06
2002/0144978	A1 *	10/2002	Leone	H01H 9/342 218/154
2003/0148658	A1 *	8/2003	Lias	H01R 31/08 439/511
2005/0255757	A1 *	11/2005	Takaya	H01R 4/363 439/812
2007/0293096	A1 *	12/2007	Hackemack	H01R 9/2458 439/709
2011/0294363	A1 *	12/2011	Yeh	H01R 4/38 439/709

* cited by examiner

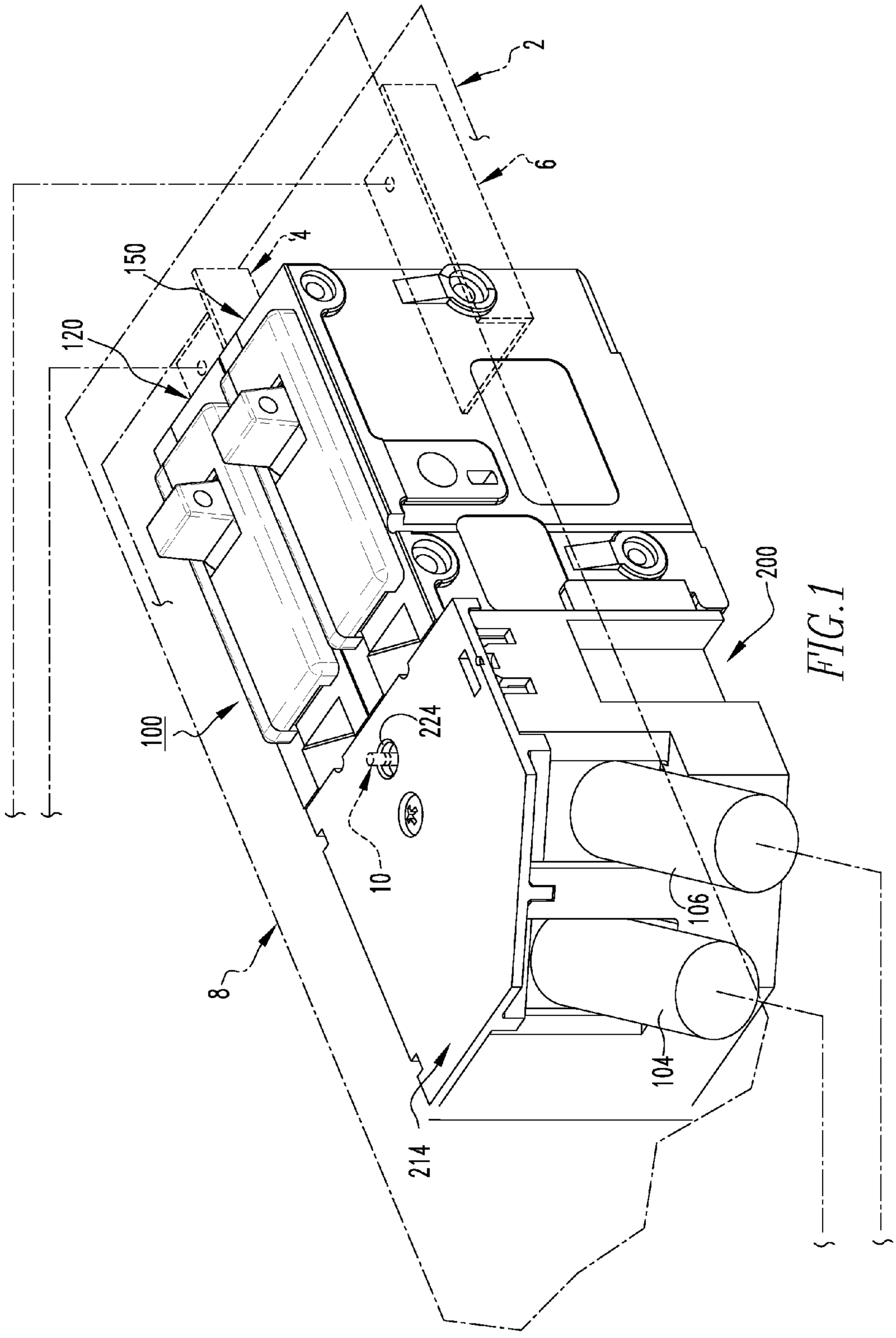


FIG. 1

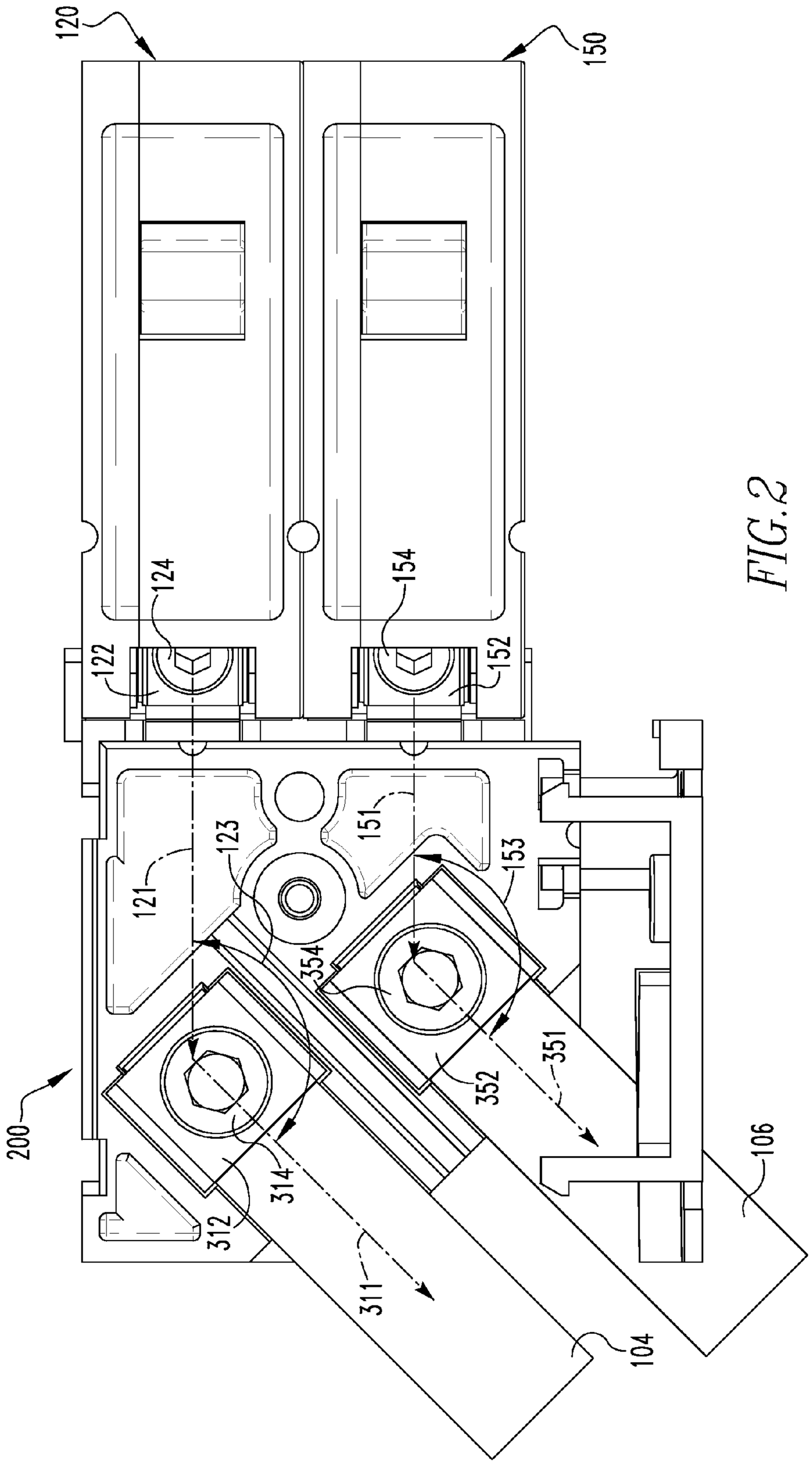

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FIG.2

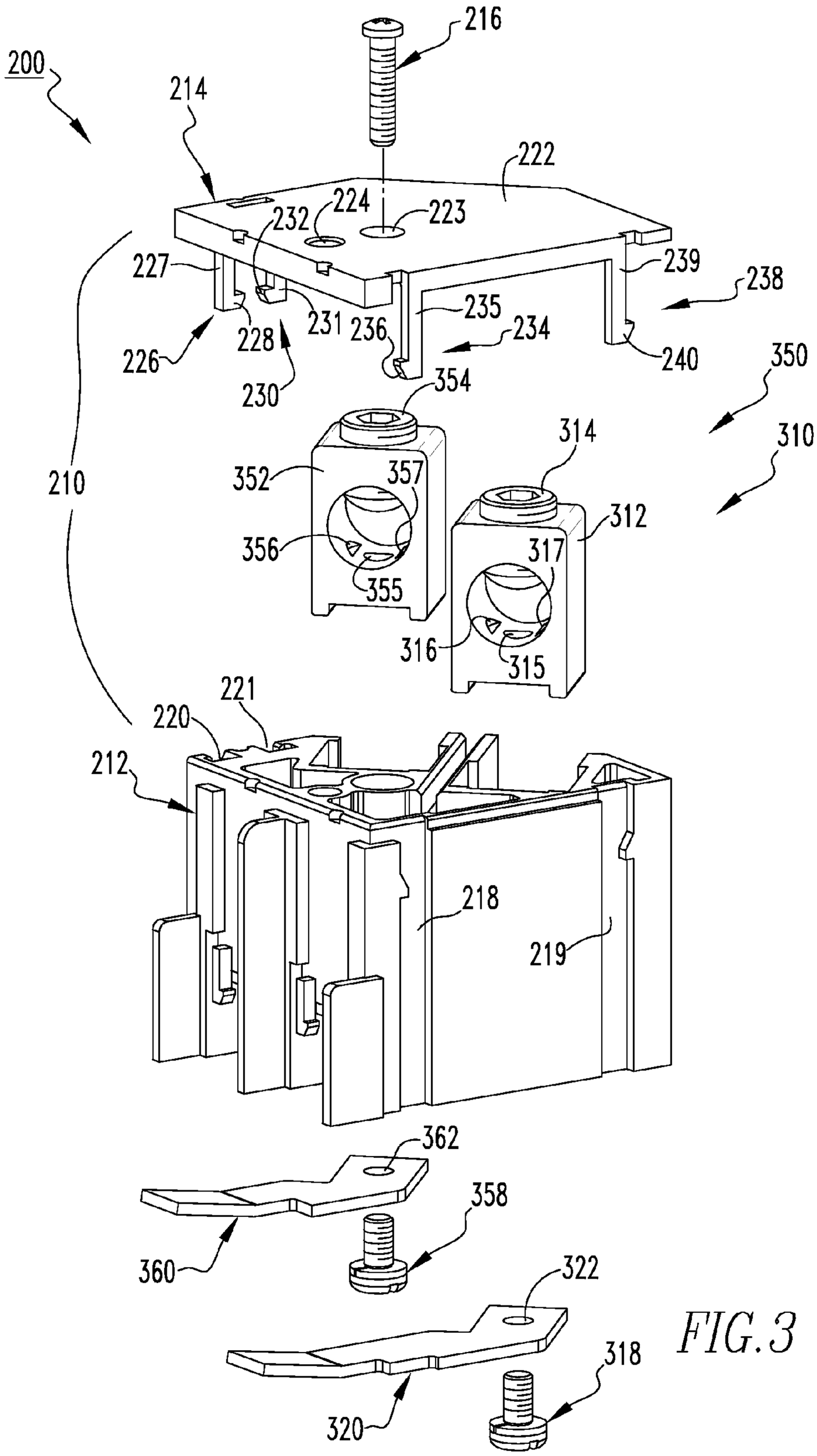
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FIG. 3

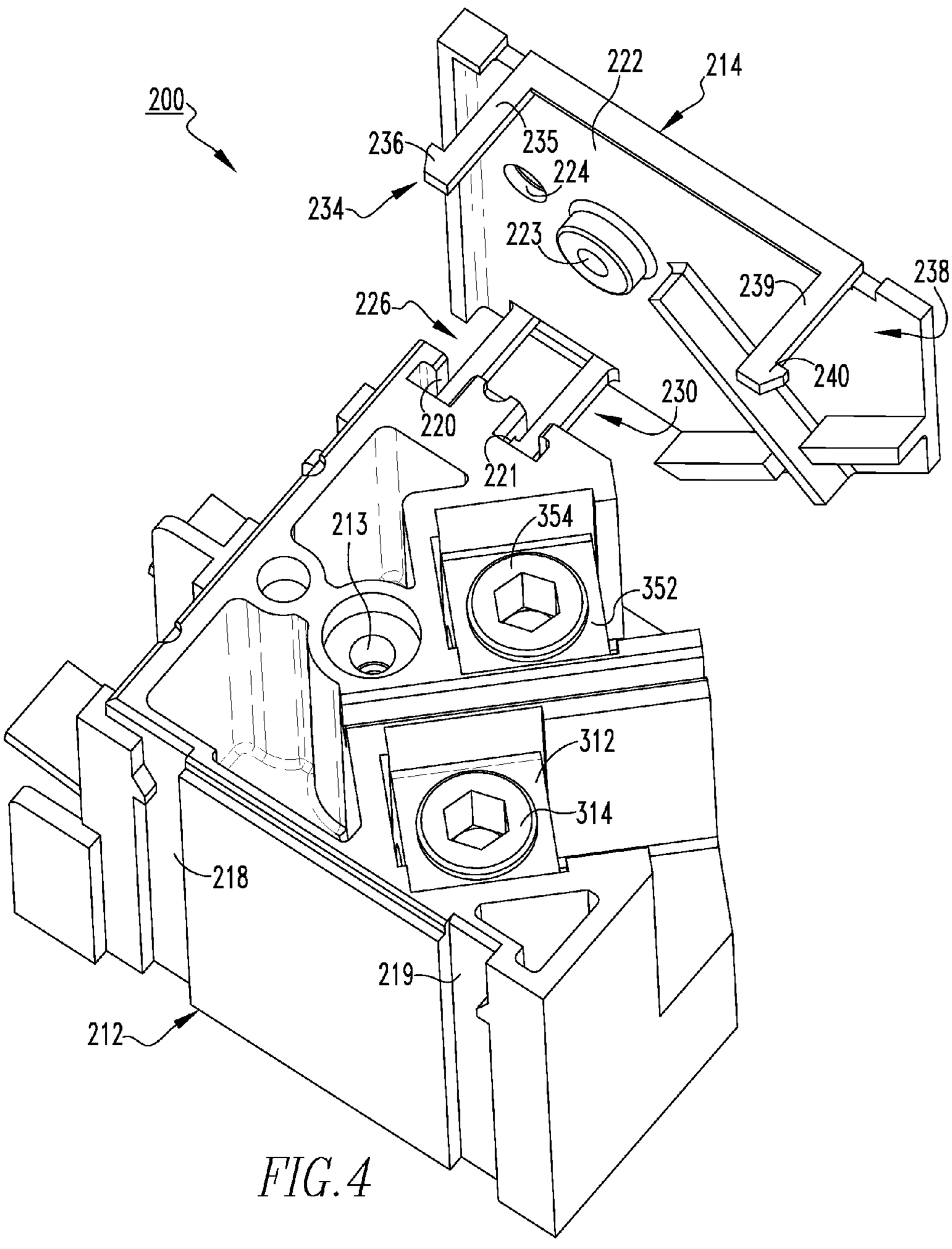
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FIG. 4

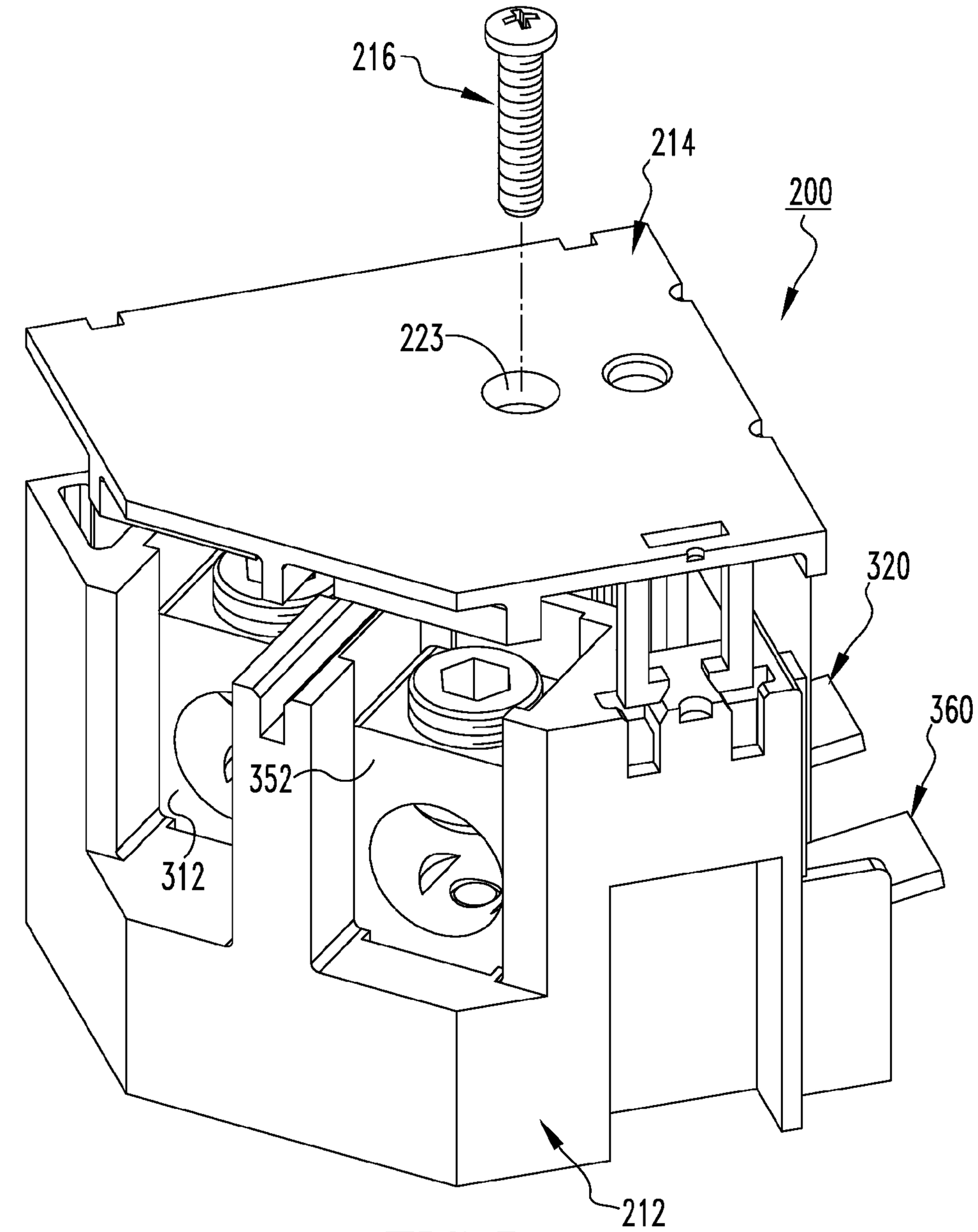


FIG.5

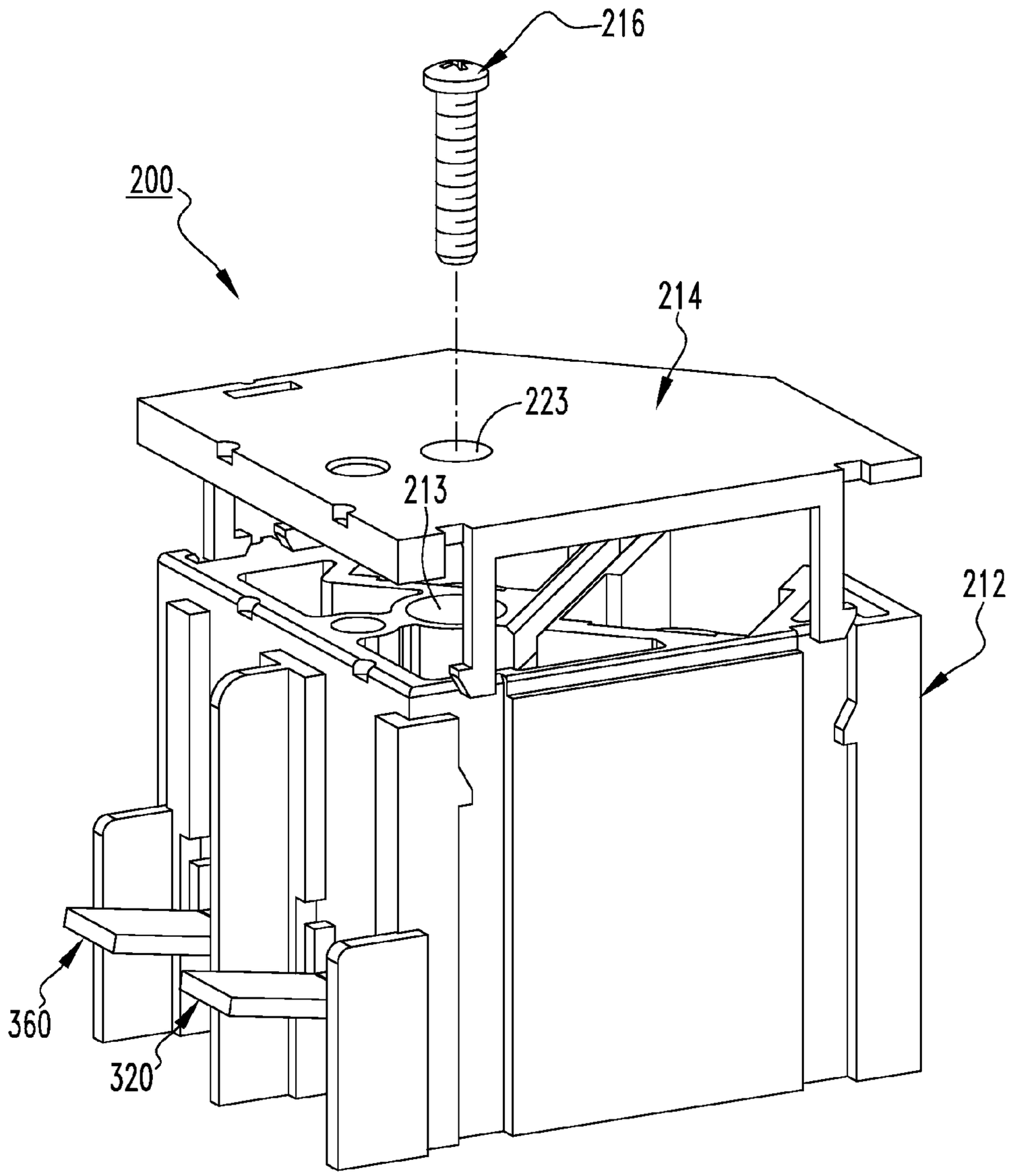
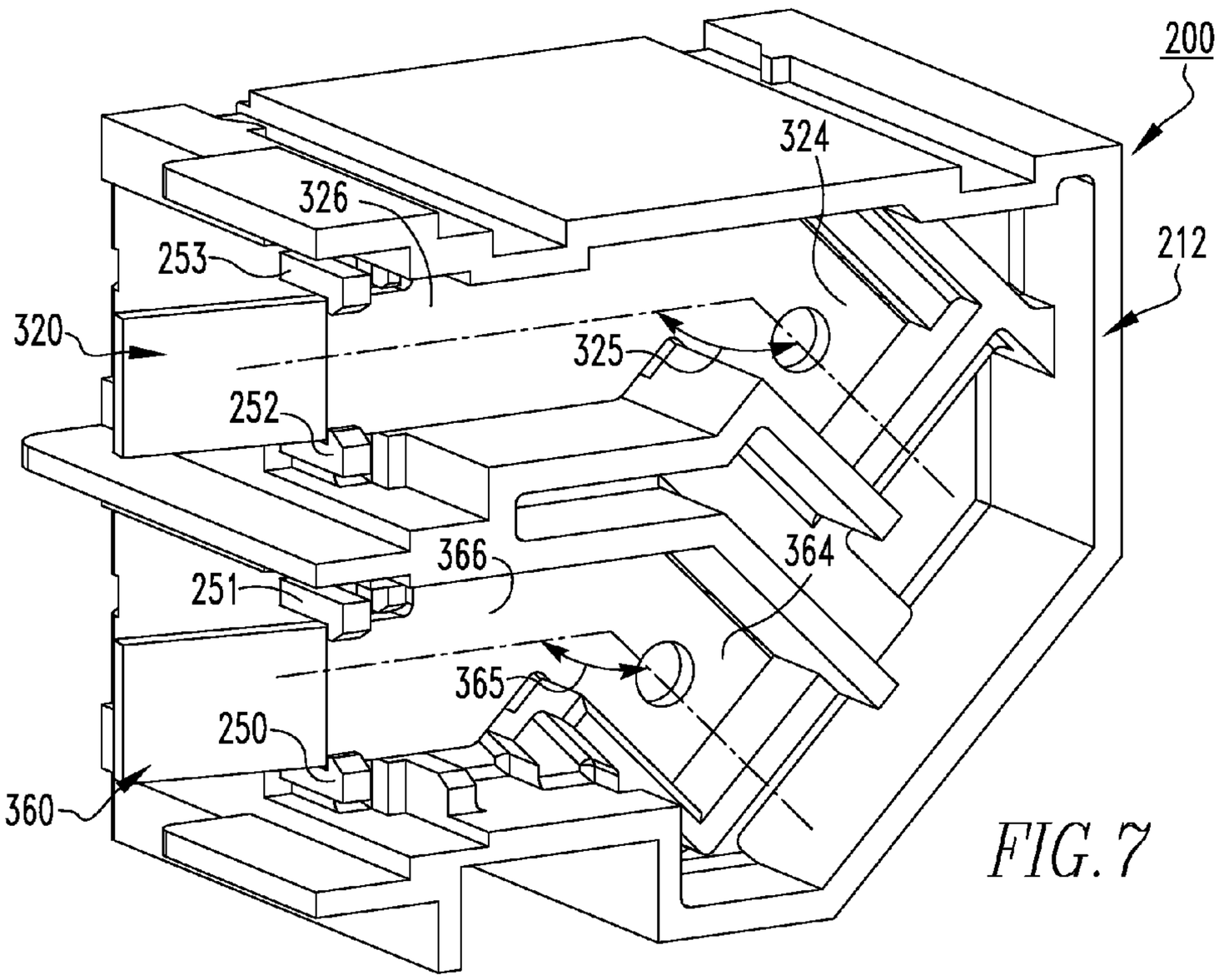


FIG. 6


200
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326
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365
250
360

FIG. 7

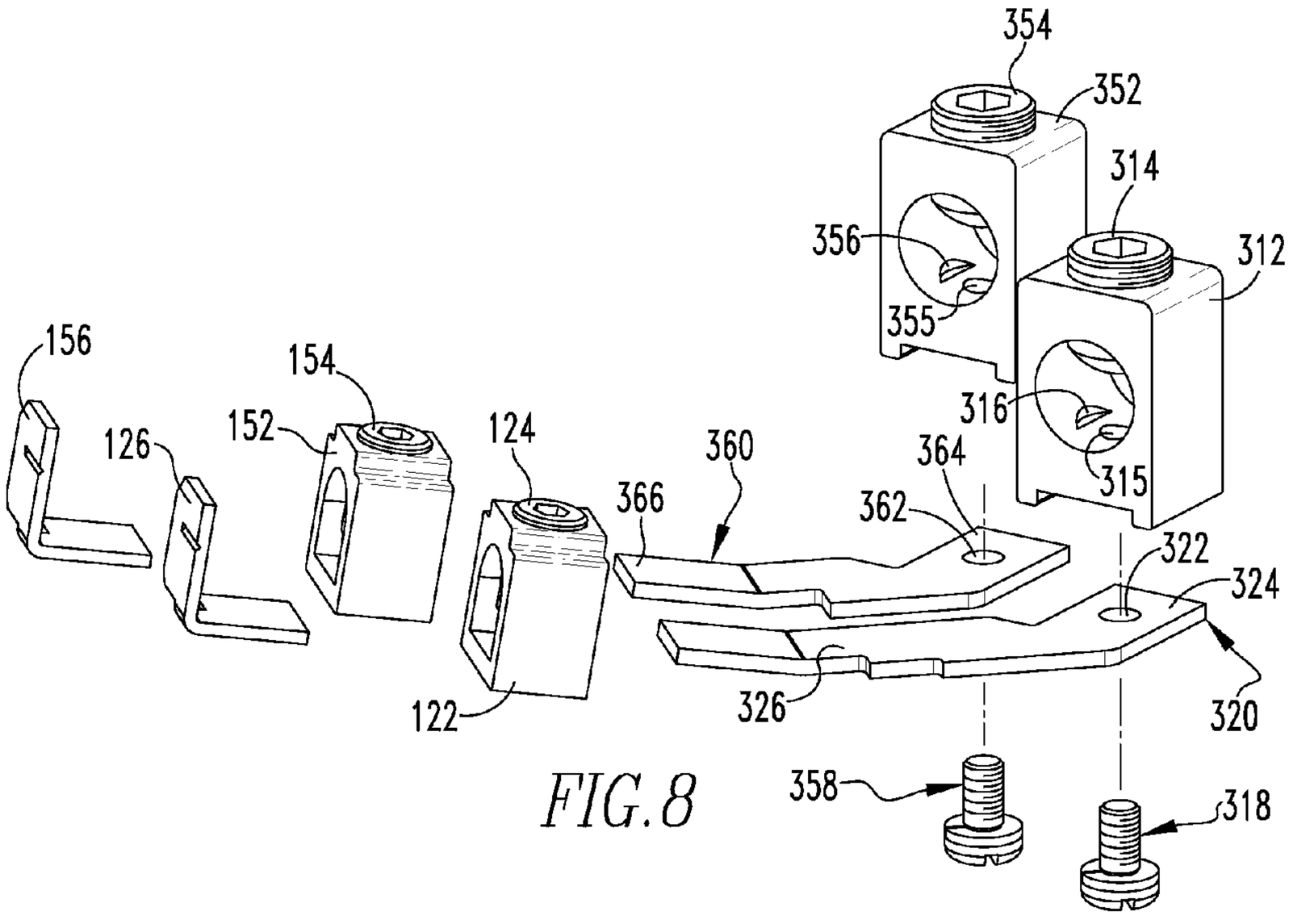
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FIG. 8

SWITCHING DEVICE ASSEMBLY AND ADAPTER ASSEMBLY THEREFOR

BACKGROUND

1. Field

The disclosed concept pertains generally to switching device assemblies and, more particularly to switching device assemblies including for example electrical switching apparatus. The disclosed concept also pertains to adapter assemblies for switching device assemblies.

2. Background Information

Known switching device assemblies include electrical switching apparatus, such as but not limited to molded case circuit breakers. A circuit breaker includes a non-conductive housing assembly that encloses a pair of separable contacts, an operating mechanism, a trip device, and other components. External to the enclosed space, the circuit breaker includes a terminal screw and a conductive terminal lug. The terminal lug is structured to be coupled to, and placed in electrical communication with, an external conductor, typically a line or load conductor. The external conductor may be, but is not limited to, a generally cylindrical cable. As such, the terminal lug may define a circular bore or opening into which the cable may be placed.

The terminal screw is movably coupled to the terminal lug and is structured to secure the cable to the terminal lug. That is, the terminal screw is structured to move between two positions, a first position, wherein the terminal screw is not set, and a second position, wherein the terminal screw is set. For example, the terminal lug may include a threaded bore that is contiguous with the opening for the cable. When the terminal screw is in the first position, the terminal screw does not bias the cable against the terminal lug. When the cable is located in the terminal lug bore and the terminal screw is moved into the set, second position, the terminal screw biases the cable against the terminal lug. That is, the terminal screw is drawn tight against the cable.

Known electrical switching apparatus may become undesirably limited by the size of the cable they can receive. For example, in certain situations it may be necessary to employ a larger cable, such as to accommodate regulatory changes (e.g., changes to the National Electric Code (NEC)), or during a longer run period to address voltage drop issues.

There is, therefore, room for improvement in switching device assemblies and in adapter assemblies therefor.

SUMMARY

These needs and others are met by embodiments of the disclosed concept, which are directed to a switching device assembly and adapter assembly therefor, which among other benefits, allow a number of relatively large cables to be received by a corresponding number of electrical switching apparatus.

In accordance with one aspect of the disclosed concept, an adapter assembly for a switching device assembly of an electrical system is provided. The electrical system includes at least one bus assembly. The switching device assembly includes at least one cable and at least one electrical switching apparatus. The cable is electrically connected to the bus assembly. The electrical switching apparatus includes a switching device lug member, a switching device lug fastener, and a load terminal. The switching device lug fastener connects the load terminal to the switching device lug member. The adapter assembly comprises: a housing assembly comprising a base member; and at least one interconnect assembly comprising: an adapter lug member coupled to the base member, the adapter lug member being structured to receive the cable, an adapter fastener structured to secure the cable to the adapter lug member, and an adapter terminal coupled to the adapter lug member and structured to be connected to the switching device lug member in order to provide an electrical pathway therebetween.

As another aspect of the disclosed concept, a switching device assembly for an electrical system is provided. The electrical system includes a bus assembly. The switching device assembly comprises: at least one cable electrically connected to the bus assembly; at least one electrical switching apparatus comprising: a switching device lug member, a switching device lug fastener, and a load terminal, the switching device lug fastener connecting the load terminal to the switching device lug member; and an adapter assembly comprising: a housing assembly comprising a base member, and at least one interconnect assembly comprising: an adapter lug member coupled to the base member, the adapter lug member receiving the cable, an adapter fastener securing the cable to the adapter lug member, and an adapter terminal coupled to each of the adapter lug member and the switching device lug member in order to provide an electrical pathway therebetween.

BRIEF DESCRIPTION OF THE DRAWINGS

A full understanding of the disclosed concept can be gained from the following description of the preferred embodiments when read in conjunction with the accompanying drawings in which:

FIG. **1** is an isometric view of a switching device assembly, partially shown in simplified form, and adapter assembly therefor, in accordance with a non-limiting embodiment of the disclosed concept;

FIG. **2** is a top plan view of a portion of the switching device assembly and adapter assembly therefor of FIG. **1**, shown with the cover open in order to see hidden structures;

FIG. **3** is an exploded isometric view of the adapter assembly of FIG. **2**;

FIG. **4** is a partially assembled isometric view of the adapter assembly of FIG. **3**, shown with the cover open in order to see hidden structures;

FIG. **5** is a partially exploded isometric view of the adapter assembly of FIG. **4**;

FIG. **6** is another partially exploded isometric view of the adapter assembly of FIG. **5**;

FIG. **7** is a rear isometric view of a portion of the adapter assembly of FIG. **6**; and

FIG. **8** is an exploded isometric view of a portion of the switching device assembly of FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As employed herein, the term "number" shall mean one or an integer greater than one (i.e., a plurality).

As employed herein, the statement that two or more parts are "connected" or "coupled" together shall mean that the parts are joined together either directly or joined through one or more intermediate parts.

As employed herein, the statement that two or more parts or components "engage" one another shall mean that the parts touch and/or exert a force against one another either directly or through one or more intermediate parts or components.

As employed herein, the term "coupling member" refers to any suitable connecting or tightening mechanism expressly

including, but not limited to, rivets, screws, bolts and the combinations of bolts and nuts (e.g., without limitation, lock nuts) and bolts, washers and nuts.

As employed herein, the term "clearance hole" shall refer to a hole in a component, such as a cover, that is structured to receive an external component, such as a coupling member of a meter stack, in order to minimize clearance distance between the meter stack and the cover.

As employed herein, the term "lug member" shall refer to a lug member that is structured to receive a cable, or range of cables, of a predetermined size. For example, a 2/0 lug member is structured to receive cables up to a maximum size of a 2/0 AWG (American Wire Gauge) cable (i.e., cable having a cross sectional area of around 88 square millimeters per AWG standards, measured without insulation). Likewise, a 4/0 lug member is structured to receive cables up to a maximum size of a 4/0 AWG cable (i.e., cable having a cross sectional area of around 141 square millimeters per AWG standards, measured without insulation).

As employed herein, the term "batwing" shall refer to a recessed region in a lug member into which a cable is pressed, thereby strengthening the connection between the cable and the lug member.

As employed herein, the phrase "directly received" shall mean that one component, such as a cable, extends into and engages another component, such as a lug member.

As employed herein, the phrase "indirectly received" shall mean that one component, such as a cable, is spaced from (i.e., does not engage), but is electrically connected with another component, such as a lug member.

FIG. **1** shows a switching device assembly **100** in accordance with a non-limiting embodiment of the disclosed concept. The example switching device assembly **100** is for an electrical system (e.g., meter stack **2**, shown in simplified form in phantom line drawing). The switching device assembly **100** includes a number of cables **104**,**106** (partially shown in simplified form in FIG. **1**), a number of electrical switching apparatus (e.g., circuit breakers **120**,**150**), and an adapter assembly **200**. The meter stack **2** includes a number of bus assemblies **4**,**6**. Each of the cables **104**,**106** is electrically connected with a respective one of the bus assemblies **4**,**6**. The cables **104**,**106** are each preferably 4/0 AWG cables (i.e., have a cross sectional area of around 141 square millimeters per AWG standards, measured without insulation).

As shown in FIG. **2**, the circuit breakers **120**,**150** each include a respective switching device lug member **122**,**152** and a respective switching device lug fastener **124**,**154**. The switching device lug members **122**,**152** are each preferably 2/0 lug members. Thus, it will be appreciated that the switching device lug members **122**,**152** are not structured to directly receive the respective cables **104**,**106**. As will be discussed below, the adapter assembly **200** advantageously allows the relatively large cables **104**,**106** to be indirectly received by the respective switching device lug members **122**,**152**, thereby electrically connecting the respective cables **104**,**106** with the respective circuit breakers **120**,**150**.

As shown in FIG. **3**, the example adapter assembly **200** includes a housing assembly **210** and a number of interconnect assemblies **310**,**350** (two are shown). The interconnect assemblies **310**,**350** each provide an electrical pathway between the respective cables **104**,**106** (FIG. **1** and FIG. **2**) and the respective circuit breakers **120**,**150** (FIG. **1** and FIG. **2**). The housing assembly **210** supports each of the interconnect assemblies **310**,**350** and electrically insulates the first interconnect assembly **310** from the second interconnect assembly **350**. The housing assembly **210** includes a base member **212**, a cover **214**, and a coupling member (e.g., screw **216**). The base member **212** and the cover **214** are each preferably injection molded components (e.g., without limitation, made of a thermoplastic material).

Each of the interconnect assemblies **310**,**350** includes a respective adapter lug member **312**,**352**, a respective adapter fastener **314**,**354**, a respective coupling member **318**,**358**, and a respective adapter terminal **320**,**360**. The adapter lug members **312**,**352** are each preferably 4/0 lug members that directly receive the respective cables **104**,**106** (FIG. **1** and FIG. **2**). Each of the adapter fasteners **314**,**354** is a set screw that secures a corresponding one of the cables **104**,**106** to the respective adapter lug members **312**,**352**. More specifically, the adapter fastener **314** presses (i.e., forces) the cable **104** into the adapter lug member **312**. The adapter fastener **354** presses (i.e., forces) the cable **106** into the adapter lug member **352**. Additionally, as shown in FIG. **3**, each of the adapter lug members **312**,**352** includes a number of batwings (two batwings **316**,**317** are shown on the adapter lug member **312**, and two batwings **356**,**357** are shown on the adapter lug member **352**). In operation, the adapter fasteners **314**,**354** press the respective cables **104**,**106** (FIG. **1** and FIG. **2**) into the respective batwings **316**,**317**,**356**,**357** in order to strengthen the connection between the cables **104**,**106** (FIG. **1** and FIG. **2**) and the respective adapter lug members **312**, **352**.

Continuing to refer to FIG. **3**, in operation, the cover **214** of the housing assembly **210** is removably coupled to the base member **212**, and each of the adapter lug members **312**,**352** is coupled to the base member **212** and located internal with respect to the cover **214** and the base member **212**. Thus, the cover **214** and the base member **212** house and protect the adapter lug members **312**,**352** and the adapter fasteners **314**, **354**. The cover **214** is in part coupled to the base member **212** by a snap-fit mechanism. Specifically, the base member **212** includes a number of slots **218**,**219**,**220**,**221**. The cover **214** includes a mounting portion **222** and a number of flexible retention members **226**,**230**,**234**,**238**. Each of the flexible retention members **226**,**230**,**234**,**238** includes a respective elongated portion **227**,**231**,**235**,**239** and a respective hook portion **228**,**232**,**236**,**240**. The elongated portions **227**,**231**, **235**,**239** extend from the mounting portion **222**. The hook portions **228**,**232**,**236**,**240** extend from the respective elongated portions **227**,**231**,**235**,**239** and are spaced from the mounting portion **222**. During assembly, once the adapter lug members **312**,**352** and the adapter fasteners **314**,**354** are located within the base member **212**, each of the flexible retention members **226**,**230**,**234**,**238** slides within a corresponding one of the slots **218**,**219**,**220**,**221**, and the hook portions **228**,**232**,**236**,**240** advantageously allow the cover **214** to be secured. In this manner, the flexible retention members **226**,**230**,**234**,**238** maintain the cover **214** on the base member **212**

As shown in FIG. **4**, the cover **214** has a thru hole **223** and the base member **212** has an aperture **213**. Referring to FIG. **5** and FIG. **6**, the screw **216** extends through the thru hole **223** and into the aperture **213** (FIG. **6**) in order to further couple the cover **214** to the base member **212**. Thus, in addition to being coupled to the base member **212** by a snap-fit mechanism, the cover **214** is further secured to the base member **212** by way of the screw **216**.

Referring to FIG. **7**, each of the adapter terminals **320**,**360** includes a first elongated portion **324**,**364** and a second elongated portion **326**,**366** extending from the first elongated portion **324**,**364**. The first elongated portions **324**,**364** are each at a respective angle **325**,**365** with respect to the second elongated portions **326**,**366**. The angles **325**,**365** are each preferably between 125 degrees and 145 degrees. The adapter lug

members **312**,**352** (FIG. **2**) are oriented in a similar configuration with respect to the switching device lug members **122**, **152** (FIG. **2**). As shown in FIG. **2**, the switching device lug members **122**,**152** face in a first direction **121**,**151** and the adapter lug members **312**,**352** face in a second direction **311**, **351**. The first directions **121**,**151** are at an angle **123**,**153** of between 125 degrees and 145 degrees with respect to the second directions **311**,**351**. As a result of this configuration, bending of the cables **104**,**106** (FIG. **1** and FIG. **2**) is advantageously minimized. In other words, the cables **104**,**106** (FIG. **1** and FIG. **2**) do not need to be bent any more than as depicted in FIG. **1** in order to be indirectly received by the circuit breakers **120**,**150** (FIG. **1** and FIG. **2**). Moreover, it will be appreciated that the first elongated portions **324**,**364** are each coupled to the respective adapter lug members **312**,**352**, and the second elongated portions **326**,**366** are each connected to the respective switching device lug members **122**, **152**. As a result, the adapter terminals **320**,**360** provide an electrical pathway between the respective adapter lug members **312**,**352** and the respective switching device lug members **122**,**152**.

More specifically, and with reference to FIG. **8**, the adapter terminals **320**,**360** each have a respective thru hole **322**,**362**. The adapter lug members **312**,**352** each have an aperture **315**,**355**. In operation, the coupling members **318**,**358** extend through the respective thru holes **322**,**362** of the adapter terminals **320**,**360** and into the respective apertures **315**,**355** of the adapter lug members **312**,**352**. Thus, the coupling members **318**,**358** are connected with the respective adapter lug members **312**,**352** and the respective adapter terminals **320**, **360** in order to electrically connect the adapter lug members **312**,**352** to the adapter terminals **320**,**360**. The coupling members **318**,**358** also partially secure the adapter terminals **320**, **360** to the base member **212**.

In addition, each of the adapter terminals **320**,**360** is also coupled to the base member **212** by a snap-fit mechanism. Referring to FIG. **7**, the base member **212** includes a number of flexible retention members **250**,**251**,**252**,**253**. The adapter terminal **320** is located between the flexible retention members **252**,**253**. Similarly, the adapter terminal **360** is located between the flexible retention members **250**,**251**. It will be appreciated that during assembly, when the adapter terminals **320**,**360** are pressed between the respective flexible retention members **250**,**251**,**252**,**253**, the flexible retention members deflect in order to allow the respective adapter terminals **320**,**360** to be securely mounted on the base member **212**.

As shown in FIG. **8**, the second elongated portions **326**,**366** of the adapter terminals **320**,**360** are structured to extend into the respective switching device lug members **122**,**152**. Similarly, the load terminals **126**,**156** extend into the respective switching device lug members **122**,**152**. The adapter terminals **320**,**360** are located between the respective switching device lug fasteners **124**,**154** and the respective load terminals **126**,**156**. Furthermore, each of the switching device lug fasteners **124**,**154** forces (i.e., presses) the respective adapter terminal **320**,**360** into the respective load terminal **126**,**156**. Thus, the switching device lug fasteners **124**,**154** connect the respective load terminals **126**,**156** and the respective adapter terminals **320**,**360** to the respective switching device lug members **122**,**152**. As a result, each of the cables **104**,**106** is electrically connected with a corresponding one of the circuit breakers **120**,**150**. Thus, although the circuit breakers **120**, **150** do not directly receive the respective cables **104**,**106**, the adapter assembly **200** advantageously allows the relatively large cables **104**,**106** to be indirectly received by the respective circuit breakers **120**,**150**.

Referring again to FIG. **1**, the meter stack **2** further includes a plate member **8** (shown in simplified form in phantom line drawing) and a coupling member **10** (shown in simplified form in phantom line drawing) coupled to the plate member **8**. The plate member **8** partially overlays (i.e., when viewed from a top plan view, is on top of) the adapter assembly **200** and is coupled to the bus assemblies **4**,**6**. Additionally, the cover **214** has a clearance hole **224**. As shown, the clearance hole **224** receives the coupling member **10**. In this manner, the adapter assembly **200** advantageously accommodates the coupling member **10** without any undesirable interference. It will, however, be appreciated that having a clearance hole is not meant to be a limiting aspect to the disclosed concept. Specifically, suitable alternative adapter assemblies (not shown) employed in other electrical systems (not shown) may not require a clearance hole.

Although the disclosed concept has been described in association with the meter stack **2** (FIG. **1**), it will be appreciated that the adapter assembly **200** or a similar suitable alternative adapter assembly (not shown) may be implemented with other electrical systems (e.g., load centers). Additionally, while the disclosed concept has been described in association with the relatively large 4/0 AWG cables **104**,**106** (FIG. **1** and FIG. **2**) being indirectly received by the 2/0 lug members **312**,**352**, it will be appreciated that a similar suitable alternative adapter assembly (not shown) may be employed in order to perform the desired function of allowing a number of cables (not shown) of a given size to be indirectly received by a corresponding number of lug members (not shown) of a different size (i.e., lug members structured to receive a cable of a different size).

Accordingly, it will be appreciated that the disclosed concept provides for an improved (e.g., without limitation, more versatile, more accommodating) switching device assembly **100** and adapter assembly **200** therefor, which among other benefits, allows a number of relatively large cables **104**,**106** to be indirectly received by a number of circuit breakers **120**, **150**, as desired.

While specific embodiments of the disclosed concept have been described in detail, it will be appreciated by those skilled in the art that various modifications and alternatives to those details could be developed in light of the overall teachings of the disclosure. Accordingly, the particular arrangements disclosed are meant to be illustrative only and not limiting as to the scope of the disclosed concept which is to be given the full breadth of the claims appended and any and all equivalents thereof.

What is claimed is:

1. An adapter assembly for a switching device assembly of an electrical system, said electrical system comprising at least one bus assembly, said switching device assembly comprising at least one cable and at least one electrical switching apparatus, said at least one cable being electrically connected to said at least one bus assembly, said at least one electrical switching apparatus comprising a switching device lug member, a switching device lug fastener, and a load terminal, said switching device lug fastener connecting said load terminal to said switching device lug member, said adapter assembly comprising:

a housing assembly comprising a base member; and

at least one interconnect assembly comprising:

an adapter lug member coupled to said base member, said adapter lug member being structured to receive said at least one cable,

an adapter fastener structured to secure said at least one cable to said adapter lug member, and

an adapter terminal coupled to said adapter lug member and structured to be connected to said switching device lug member in order to provide an electrical pathway therebetween,

wherein said at least one interconnect assembly further comprises a coupling member; wherein said adapter terminal has a thru hole; wherein said coupling member extends through the thru hole of said adapter terminal; wherein said coupling member is connected to said adapter lug member; wherein said adapter terminal comprises a first elongated portion and a second elongated portion; wherein the first elongated portion is coupled to said adapter lug member; wherein the second elongated portion extends from the first elongated portion; wherein the second elongated portion is structured to be connected to said switching device lug member; and wherein the first elongated portion is disposed at an angle of between 125 degrees and 145 degrees with respect to the second elongated portion.

2. The adapter assembly of claim **1** wherein said at least one interconnect assembly comprises a first interconnect assembly and a second interconnect assembly; and wherein said first interconnect assembly is electrically insulated from said second interconnect assembly.

3. The adapter assembly of claim **1** wherein said housing assembly further comprises a cover removably coupled to said base member; and wherein said adapter lug member is disposed internal with respect to said base member and said cover.

4. The adapter assembly of claim **3** wherein said cover has a clearance hole.

5. The adapter assembly of claim **3** wherein said cover comprises a mounting portion and a number of flexible retention members extending from the mounting portion; wherein said base member has a number of slots; and wherein, when each of said flexible retention members is disposed in a corresponding one of said number of slots, said flexible retention members maintain said cover on said base member.

6. The adapter assembly of claim **5** wherein each of the flexible retention members comprises an elongated portion and a hook portion; wherein the elongated portion extends from the mounting portion; wherein the hook portion extends from the elongated portion; and wherein the hook portion is spaced from the mounting portion.

7. The adapter assembly of claim **5** wherein said housing assembly further comprises a coupling member; wherein said cover has a thru hole; wherein said base member has an aperture; wherein said coupling member extends through the thru hole of said cover; and wherein said coupling member extends into the aperture of said base member in order to couple said cover to said base member.

8. An adapter assembly for a switching device assembly of an electrical system, said electrical system comprising at least one bus assembly, said switching device assembly comprising at least one cable and at least one electrical switching apparatus, said at least one cable being electrically connected to said at least one bus assembly, said at least one electrical switching apparatus comprising a switching device lug member, a switching device lug fastener, and a load terminal, said switching device lug fastener connecting said load terminal to said switching device lug member, said adapter assembly comprising:

a housing assembly comprising a base member; and

at least one interconnect assembly comprising:

an adapter lug member coupled to said base member, said adapter lug member being structured to receive said at least one cable,

an adapter fastener structured to secure said at least one cable to said adapter lug member, and

an adapter terminal coupled to said adapter lug member and structured to be connected to said switching device lug member in order to provide an electrical pathway therebetween,

wherein said adapter terminal is coupled to said base member by a snap-fit mechanism.

9. The adapter assembly of claim **8** wherein said base member comprises a first flexible retention member and a second flexible retention member; wherein said adapter terminal is disposed between said first flexible retention member and said second flexible retention member; and wherein each of said first flexible retention member and said second flexible retention member secures said adapter terminal to said base member.

10. A switching device assembly for an electrical system, said electrical system comprising at least one bus assembly, said switching device assembly comprising:

at least one cable structured to be electrically connected to said at least one bus assembly;

at least one electrical switching apparatus comprising:

a switching device lug member,

a switching device lug fastener, and

a load terminal, said switching device lug fastener connecting said load terminal to said switching device lug member; and

an adapter assembly comprising:

a housing assembly comprising a base member, and

at least one interconnect assembly comprising:

an adapter lug member coupled to said base member, said adapter lug member receiving said at least one cable,

an adapter fastener securing said at least one cable to said adapter lug member, and

an adapter terminal coupled to each of said adapter lug member and said switching device lug member in order to provide an electrical pathway therebetween,

wherein said adapter lug member faces in a first direction; wherein said switching device lug member faces in a second direction; and wherein the first direction is disposed at an angle of between 125 degrees and 145 degrees with respect to the second direction.

11. The switching device assembly of claim **10** wherein said adapter lug member has a number of batwings; and wherein said adapter fastener presses said at least one cable into each of the number of batwings.

12. The switching device assembly of claim **10** wherein said adapter terminal extends into said switching device lug member; wherein said load terminal extends into said switching device lug member; wherein said adapter terminal is disposed between said switching device lug fastener and said load terminal; wherein said switching device lug fastener forces said adapter terminal into said load terminal, thereby electrically connecting said at least one cable to said at least one electrical switching apparatus.

13. The switching device assembly of claim **12** wherein said at least one cable comprises a first cable and a second cable; wherein said at least one electrical switching apparatus comprises a first electrical switching apparatus and a second electrical switching apparatus; wherein said at least one interconnect assembly comprises a first interconnect assembly and a second interconnect assembly; wherein said first interconnect assembly electrically connects said first cable to said first electrical switching apparatus; and wherein said second

interconnect assembly electrically connects said second cable to said second electrical switching apparatus.

14. The switching device assembly of claim **13** wherein said first electrical switching apparatus is a first circuit breaker; and wherein said second electrical switching apparatus is a second circuit breaker.

15. The switching device assembly of claim **10** wherein said adapter terminal is coupled to said base member by a snap-fit mechanism.

16. The switching device assembly of claim **10** wherein said housing assembly further comprises a cover removably coupled to said base member; wherein said adapter lug member is disposed internal with respect to said base member and said cover; and wherein said cover has a clearance hole.

17. The switching device assembly of claim **10** wherein said at least one interconnect assembly further comprises a coupling member; wherein said adapter terminal has a thru hole; wherein said coupling member extends through the thru hole of said adapter terminal; wherein said coupling member is connected to said adapter lug member; wherein said adapter terminal comprises a first elongated portion and a second elongated portion; wherein the first elongated portion is coupled to said adapter lug member; wherein the second elongated portion extends from the first elongated portion; wherein the second elongated portion is structured to be connected to said switching device lug member; and wherein the first elongated portion is disposed at an angle of between 125 degrees and 145 degrees with respect to the second elongated portion.

18. The switching device assembly of claim **10** wherein said electrical system further comprises a plate member and a coupling member coupled to said plate member; wherein said plate member is coupled to said at least one bus assembly; wherein said plate member is structured to at least partially overlay said adapter assembly; wherein said housing assembly further comprises a cover removably coupled to said base member; wherein said adapter lug member is disposed internal with respect to said base member and said cover; wherein said cover has a clearance hole; and wherein said clearance hole is structured to receive said coupling member.

19. The switching device assembly of claim **10** wherein said housing assembly further comprises a cover removably coupled to said base member; wherein said adapter lug member is disposed internal with respect to said base member and said cover; wherein said cover comprises a mounting portion and a number of flexible retention members extending from the mounting portion; wherein said base member has a number of slots; and wherein, when each of said flexible retention members is disposed in a corresponding one of said number of slots, said flexible retention members maintain said cover on said base member.

20. The switching device assembly of claim **19** wherein each of the flexible retention members comprises an elongated portion and a hook portion; wherein the elongated portion extends from the mounting portion; wherein the hook portion extends from the elongated portion; and wherein the hook portion is spaced from the mounting portion.

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